Algebra 1

Number Sense

Students in Algebra 1 understand irrational numbers. They compute fluently and simplify problems with square roots. They solve for missing sides of a right triangle using the Pythagorean Theorem.

Examples: $\sqrt{2}+3\sqrt{2}$ What is the measure of the hypotenuse of a right triangle whose legs measure 3 cm. and 5 cm.?

Proportional Relationships

Students write and graph equations of lines. They identify and analyze the slope of a line.

Examples: Write an equation for a line going through (3, 10) and (-1, -6)
What is the slope in the equation $2x-3y=7$?

Algebra

Students simplify and evaluate algebraic expressions. They solve equations, systems of equations, inequalities, and proportions. They learn to factor and solve equations by factoring.

Example: Multiply $2x^2y(3x^3-4xy+y^4)$ Solve $x^2+5x-14=0$

Probability and Statistics

Students collect, record, organize and display data and estimate equations that describe the data.

Example: Estimate the equation of the line that goes through (0, 2), (1,6), (2,8), (3,11)

Number Sense

$\sqrt{2}+3\sqrt{2}=$

$1\sqrt{2}+3\sqrt{2}=4\sqrt{2}$

What is the measure of the hypotenuse of a right triangle whose legs measure 3 cm. and 5 cm.?

$3^2+5^2=h^2$

$9+25=34=h^2$

$h=\sqrt{34}$

Proportional Relationships

Write an equation for a line going through (3, 10) and (-1, -6)

$m=\frac{-6-10}{-1-3}=\frac{-16}{-4}=4$

$y-10=4(x-3)$

$y=4x-12+10$

$y=4x-2$

or

$4x-y=2$

What is the slope in the equation $2x-3y=7$?

$2x-3y=7$

$-3y=-2x+7$

$y=\frac{-2}{-3}x+\frac{7}{-3}$

$m=\frac{2}{3}$

Algebra

Multiply $2x^2y(3x^3-4xy+y^4)$

$2x^2y(3x^3-4xy+y^4)$

$6x^5y-8x^3y^2+2x^2y^5$

Solve $x^2+5x-14=0$

$x^2+5x-14=0$

$(x+7)(x-2)=0$

$x=-7$ or 2

Probability and Statistics

Example: Estimate the equation of the line that goes through (0, 2), (1,6), (2,8), (3,11)

$m=\frac{8-2}{2-0}=\frac{2}{6}=3$

$y-2=3x-0$

$y=3x+2$

x	y
0	**2**
1	**6**
2	**8**
3	**11**